

MEMO



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Water Quality Division

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To: Chuck Duerschner
From: Curtis Christiansen
Through:
Date: December 21, 2016
Re: South Sioux City Force Main

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On December 21, 2016, I met with Bob Livermore, South Sioux City Utility Superintendent, to discuss installation of the force main, a recent SSO spill, and update on current status of homes contaminated with H₂S.

Big Ox is currently not discharging to the sewer system. All Big Ox wastewater is being trucked over to the Sioux City Iowa WWTF. The industrial wastewater in the system now is from industries that were discharging prior to the startup of Big Ox.

The attached map was provided By Mr. Livermore and following is a summary of our discussion. The force main was completed and the temporary lift station was installed and pumping to the new force main began on December 9th. The temporary pumps are located in the field just north of hwy 20. A pneumatic plug was installed about 300 feet north of the lift station so that the gravity sewer line up to the plug would serve as a wet well. The plug initially failed and had to be reinstalled. A second plug at E 39th Street will be installed as a backup.

On December 16 the Sanitary Sewer Overflow (SSO) occurred. There was a problem with the alarm system on the new portable pumps and city personal were not notified of the pump outage. The SSO occurred near BPI lift station, along Dakota Avenue. Wastewater overflowed the manhole and ran in the ditch along Dakota Avenue. The city immediately pumped out the wastewater in the ditch and cleaned up any residue. The SSO was reported to the department.

The problem with the alarm system at the temporary lift station has been corrected.

Next spring the city is planning to extend the force main all the way to Big Ox. This will place all the industrial wastewater in the force main. They will also be installing odor control and treatment equipment at the Bennet lift station, next spring.

The gravity sewer along E 39th Street is receiving industrial wastewater from the BIMBO bakery and ADM facility, near Dakota Avenue and W 39th Street. The H₂S is being treated with application of peroxide near the sewer connection for these facilities. The city is considering whether to run the industrial wastewater to the north, which was the

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old connection to the sewer system, or install a domestic only sewer line along E 39th, parallel to the existing gravity sewer. The city also installed a water trap in the gravity sewer where Red Bird Lane connects to the E 39th Street gravity sewer. This trap should help prevent gases from progressing up the Red Bird Lane sewer.

The city is sampling at 5 locations within the sewer system. Sampling locations are noted on the attached map. Data from the meters is posted on the city's website www.southsiouxcity.org. Following is the location where the data is posted. We reviewed a few dates. H₂S was present in several of the sampling sites shown on the attached map. West of Redbird Lane the sampler was indicating a daily spike. H₂S was measured frequently at the manhole located at the intersection of Dakota Avenue and Apache Drive.

The screenshot shows the top portion of the South Sioux City website. At the top is a dark banner with the text 'BREAKING NEWS' on the left and 'Sewer Odor Updates\HOJA INFORMATIVA SOBRE LOS OLORES' on the right. Below the banner is a light gray header area with the city's name and slogan: 'South Sioux City - "Where Quality of Life is a Cardinal"'.

On the left side, there is a vertical sidebar with several navigation links, each accompanied by a small icon: 'Public Safety' (people icon), 'Live/Recorded Meetings' (video camera icon), 'Meeting Agendas' (document icon), 'Municipal Codes' (book icon), 'Online Bill Pay' (computer monitor icon), and 'Donations' (dollar sign icon).

To the right of the sidebar is a main content area. At the top of this area are two tabs: 'News & Notices' (which is selected and highlighted with a black border) and 'How Do I?'. Below the tabs, a list of news items is displayed: 'Finance Meeting 12/21/2016 Cancelled', 'City Offices Holiday Hours', 'Big Ox Letter to Residents December 14, 2016', and 'Part Time Community Service Officer'. At the bottom of the list, the link 'Sample Locations and Results\Ubicación y Resultados de la Muestra' is circled in red.

There are still 10 homes that are still vacant. Cleaning has been unable to remove the odors. Some of the homes are replacing the drywall and installation. The city is evaluating the purchase of some of the homes. The city conducted a smoke test of each home's venting system. It was found that several of the homes with problems had improper sewer venting. In the basement of one home, a stub out for a toilet had been installed. The toilet was not installed and the stubout was covered up under carpet. In other homes the vent pipe either vented to the attic rather than through the roof and some homes did not have a vent pipe. Some homes with proper plumbing were also contaminated with H₂S.

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After discussing the current status, Bob Livermore and I inspected the area. We started initially at Red Bird Lane. A hand held multiRAE meter was used to measure the air in manholes. The sample was collected by inserting the probe into the pick hole of the manhole cover.

An air sample from the manhole at E 39th and Red Bird Lane and also the sewer serving Redbird Lane above the connection of Red Bird Lane to the E 39th sewer. There was no H₂S detected at either manhole.

Next we went to the temporary lift station. A crew was installing a plug approximately 300 feet north of the temporary lift station in the existing gravity sanitary sewer. An air sample was collected from the manhole where the plug was being installed and 17.0 mg/L of H₂S was measured. Approximately 300 feet of the old gravity sewer line is being used as the wet well of the temporary pump station.

There are two temporary pumps on trailers at the lift station. A power line has been connected to the pumps and they have a dialer/alarm installed. They are inspected daily by city workers.

Following the inspection of the lift station we drove the route of the force main to the Bennet Lift station. At the lift station the force main is piped above ground and then down into the wet well. The force main was inserted below the water level of the wet well. Odors were present downwind of the lift station. The handheld mutliRAE meter did not register any H₂S. However, it was windy and this may not be the proper application for this meter. There are several homes south of the Bennet Lift Station. Mr. Livermore reported that their have been odor complaints received from the residents..

Next we went to the gravity sewer just south of Hwy 20. The multiRAE meter was used to measure air around the manhole lid. 4.0 mg/L H₂S and 380 mg/L VOC was measured.

Next we drove to the BPI lift station. This is the location of the SSO spill over the weekend. The wastewater flowed into a ditch along the west side of Dakota Avenue. Mr. Livermore indicated the wastewater in the ditch was pumped up and the ground scrapped as clean as possible. There were a few grease balls around the manhole, but the ditch looked clean. This is also the location where the city is adding Bioxide to the collection system.

Next we drove south on Dakota Avenue, around the Tyson Foods facility and north to Big Ox. Odor was present south of the Tyson Food facility.

We drove along the county road south of the Big Ox facility. Odors were present, downwind of Big Ox. An air sample was collected with the meter, but no H₂S was detected with the multi RAE meter. It is not known if the odors south of the Tyson Foods facility was from Tyson Food or Big Ox.

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Mr. Livermore indicated they have had odor complaints from residents located Northwest of Big Ox near the old Atokad race track.

Next we went north to W 39th Street. At the ADM facility the city has installed Peroxide treatment. There were no odors detected at the ADM site.

After the inspection with Mr. Livermore, I stopped at Big Ox. The manager was on annual leave and the assistant manager was at lunch. An employee did confirm that they are not discharging to the collection system. They are receiving approximately 16 truck loads of paunch manure, daily. All wastewater removed from the system is trucked to the Sioux City Iowa WWTF.